R. S. Bivand, Norwegian School of Economics, Bergen, Norway; E. J. Pebesma, Westfälische Wilhelms-Universität, Münster, Germany; V. Gómez-Rubio, Universidad de Castilla-La Mancha, Albacete, Spain

Applied Spatial Data Analysis with R

Applied Spatial Data Analysis with R, second edition, is divided into two basic parts, the first presenting R packages, functions, classes and methods for handling spatial data. This part is of interest to users who need to access and visualise spatial data. Data import and export for many file formats for spatial data are covered in detail, as is the interface between R and the open source GRASS GIS and the handling of spatio-temporal data. The second part showcases more specialised kinds of spatial data analysis, including spatial point pattern analysis, interpolation and geostatistics, areal data analysis and disease mapping.

Features
- Addresses the needs of researchers and students using R to analyze spatial data across a range of disciplines and professions
- Co-authored by a group involved in the Comprehensive R Archive Network
- Second edition is fully revised

Contents

Fields of interest
Statistics, general; Computer Science, Chemistry and Earth Sciences; Statistics for Engineering, Physics, Sciences; Statistics for Life Sciences, Medicine, Health Sciences; Statistics for Business/Economics/Mathematical Finance/Insurance; Statistics and Computing/Statistics Programs; Statistics, general

Target groups
Research

Product category
Monograph

Statistical Methods for Dynamic Treatment Regimes

Reinforcement Learning, Causal Inference, and Personalized Medicine

Statistical Methods for Dynamic Treatment Regimes shares state of the art of statistical methods developed to address questions of estimation and inference for dynamic treatment regimes, a branch of personalized medicine. This volume demonstrates these methods with their conceptual underpinnings and illustration through analysis of real and simulated data.

Features
- Covers newest statistical and computational approaches to the development of dynamic treatment regime models and analysis of data
- Provides a synthesis of methods from the spheres of causal inference and clinical trial design
- Comprehensive in scope, touching upon traditional and computational methods for statistical design and interpretation

Contents

Fields of interest
Statistics for Life Sciences, Medicine, Health Sciences; Statistics, general; Health Informatics

Target groups
Graduate

Product category
Graduate/Advanced undergraduate textbook

C. Fraser, University of Virginia, Charlottesville, VA, USA

Business Statistics for Competitive Advantage with Excel 2013

Basics, Model Building, Simulation and Cases

Features
- Focuses on statistical analysis, model building, simulation, sensitivity analysis and translation of results to improve business decisions
- Covers the full gamut of Excel properties and utilities for Business Stats, including time saving shortcuts communicated very clearly with concise tables and screen shots
- Statistical Analyses are translated into concise Business English Applications that are taken from actual Business problems

Contents

Fields of interest
Statistics for Business/Economics/Mathematical Finance/Insurance; Statistics and Computing/Statistics Programs; Statistics, general

Target groups
Graduate

Product category
Graduate/Advanced undergraduate textbook
A. Galecki, University of Michigan, Ann Arbor, MI, USA; T. Burzykowski, Hasselt University, Belgium

Linear Mixed-Effects Models Using R

A Step-by-Step Approach

Linear mixed-effects models (LMMs) are an important class of statistical models that can be used to analyze correlated data. Such data are encountered in a variety of fields including biostatistics, public health, psychometrics, educational measurement, and sociology. This book aims to support a wide range of uses for the models by providing state-of-the-art descriptions of the implementation of LMMs in R. To help readers get familiar with the features of the models and the details of carrying them out in R, the book includes a review of the most important theoretical concepts of the models. The presentation connects theory, software and applications.

Features
► This book provides a description of the most important theoretical concepts and features of linear mixed models (LMMs) and their implementation in R
► All the classes of linear models presented in the book are illustrated using real-life data
► Provides information crucial to data from many fields including biostatistics, public health, psychometrics, educational measurement, and sociology
► A step-by-step approach is used to describe the R tools for LMMs

Contents

Fields of interest
Statistical Theory and Methods; Statistics, general; Statistics and Computing/Statistics Programs

Target groups
Graduate

Product category
Monograph

H. Li, Washington State University, Pullman, WA, USA; X. Li, Xiamen University, Fujian, China (Eds)

Stochastic Orders in Reliability and Risk

In Honor of Professor Moshe Shaked

Stochastic Orders in Reliability and Risk Management is composed of 19 contributions on the theory of stochastic orders, stochastic comparison of order statistics, stochastic orders in reliability and risk analysis, and applications. These review/exploratory chapters present recent and current research on stochastic orders reported at the International Workshop on Stochastic Orders in Reliability and Risk Management, or SORR2011, which took place in the City Hotel, Xiamen, China, from June 27 to June 29, 2011. The conference’s talks and invited contributions also represent the celebration of Professor Moshe Shaked, who has made comprehensive, fundamental contributions to the theory of stochastic orders and its applications in reliability, queueing modeling, operations research, economics and risk analysis.

Features
► Covers wide range of research related to stochastic methods in reliability and risk management
► Includes many applications in several fields, including game theory and decision analysis in economics, optimization, security, and finance
► Original contributions from leading international scholars

Contents

Fields of interest
Statistical Theory and Methods; Statistics for Life Sciences, Medicine, Health Sciences; Statistics, general

Target groups
Research

Product category
Contributed volume
A. Smajgl, O. Barreteau, CSIRO Ecosystem Sciences, Townsville, QLD, Australia (Eds)

**Empirical Agent-Based Modelling**

**Challenges and Solutions**

Agent-based modeling (ABM) is a powerful, simulation-modeling technique that has seen an uptick in the number of useful real-world applications in the last few years. In ABM, a system is modeled as a collection of autonomous decision-making entities called “agents.” Each agent individually assesses its situation and makes decisions on the basis of a set of rules. Agents may execute various behaviors appropriate for the system they represent—for example, producing, consuming, or selling. ABM is primarily used for simulating real-world systems, such as natural resource use, transportation, public health, and conflict.

**Features**

- First comprehensive text to feature the methodologies and applications behind ABM
- ABM is taught in a wide range of subject areas from Economics, Sociology, and Ecology to Computer Science and Engineering
- Includes contributions from such well-known academics and ABM experts as Dan Brown, Thomas Berger, and Dawn Parker

**Contents**

- Empiricism and agent-based modelling - A case study on characterising and parameterising an agent-based integrated model of recreational fishing and coral reef ecosystem dynamics.
- An Agent-Based Model of Tourist Movements in New Zealand. Human–ecosystem interaction in large ensemble model systems.
- Using Spatially Explicit Marketing Data to Build Social Simulations

Of interest to everyone with an interest in climate research and the effects of climate change

**Fields of interest**

Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences; Probability Theory and Stochastic Processes; Geophysics and Environmental Physics

**Target groups**

Research

**Product category**

Monograph

**Due June 2013**

2013. XV, 399 p. 56 illus., 37 in color. (Lecture Notes in Statistics, Volume 212) Softcover
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**Due April 2013**

- approx. € (D) 90,90 | € (A) 93,45 | sFr 113,50
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ISBN 978-3-642-30252-7
J. Wakefield, University of Washington, Seattle, WA, USA

Bayesian and Frequentist Regression Methods

This book provides a balanced, modern summary of Bayesian and frequentist methods for regression analysis.

Features
- Provides a balanced, modern summary of Bayesian and frequentist methods for regression analysis
- A book website contains R code to reproduce all of the analyses and figures in the book

Contents

Fields of interest
Statistical Theory and Methods; Statistics, general

Target groups
Graduate

Product category
Graduate/Advanced undergraduate textbook

Available
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